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	Complete if Known	
Application Number Confirmation Number	09/920,235 5852	
Filing Date	8/1/2001	
First Named Inventor	Mark William Smith	
Art Unit	2878	
Examiner Name	Constantine Hannaher	
Attorney Docket Number	36032/094	

			U.S. PATENT I	DOCUMENTS	
Examiner Initials *	Cite No.1	Document Number  Number - Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevan Passages or Relevant Figures Appear
	1	US-4,641,973	Feb. 10, 1987	Nestler et al.	rigures Appear
	2	US- 4,780,613	Oct. 25, 1988	Berstein et al.	
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				Group Art Unit	2878
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Sheet	2	of	6	Attorney Docket Number	36032/094

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	3	REICHLE, HENRY G., CONNORS, VICKIE S., HOLLAND, ALVIN, HYPES, WARREN D., and WALLIO, ANDREW, "Middle and Upper Tropospheric Carbon Monoxide Mixing Ratios as Measured by a Satellite-Borne Remote Sensor During November 1981, Journal of Geophysical Research, Vol. 91, No D10, pages 10,865-10,887, September 20, 1986	
	4	DRUMMOND, J. R., "Measurements of Pollution in the Tropospher (MOPITT), The Use of EOS for Studies of Atmospheric Physics, pgs. 77-101 (1992)	
	5	MATR MOPITT Airborne Test Radiometer, http://www.eos.ucar.edu/matr/Welcome.html.	
	6	MOPITT, http://www.atmosp. physics.utoronto.ca/MOPITT/home.html	
	7	WARNER, JUYING X., GILLE, JOHN C., EDWARDS, DAVID P., ZISKIN, DAN C., SMITH, MARK W., BAILEY, PAUL L., and ROKKE, LAURIE, "Cloud detection and clearing for the Earth Observing System Terra satellite Measurements of Pollution in the Troposphere (MOPITT) experiment," Applied Optics, Vol. 40, No. 8, March 10, 2001, pgs. 12691284.	
	8	"Gas Correlation Spectroscopy" OPTO-KNOWLEDGE: The Source for Special Imaging - Press, http://www.techexpo.com/WWW/opto-knowledge/gas-corr.html	
	9	SANDSTEN, JONAS, EDNER, HANS, SVANBERG, SUNE, and WEIBRING, PETER, "Gas imaging using gas-correlation spectroscopy" http://www-atom.fysik.lth.se/AFDOCS/Progrep978/c3.htm	
	10	SMITH, MARK W., "Technical Report for: MOPITT Airborne Test Radiometer (MATR), March 15, 2000, http://www.eos.ucar.edu.Matr.Welcome.html.  "Measurements of Pollution in The Troposphere MOPITT," http://www.atmosp.physics.utoronto.ca/MOPITT/home.html.	
	11		1
	12	MOPITT Project, http://eos.acd.ucar.edu/mopitt  Measurements of Pollution in the Troposphere, MOPITT Overview,	6 2003
	13	Measurements of Pollution in the Troposphere, MOPITT Overview, http://www.atmosp.physics.utoronto.ca/MOPITT/overview.html	8

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14 (MOPITT) Program; http://www.acd.ucar.edu/asr99/MOPITT.html.  15 CLERBAUX, CATH, HADJI-LAZARO, JULIETTE, "Assimilation of carbon monoxide measured from satellite in a three-dimensional chemistry-transport model," Journal of Geophysical Research, 2000  16 EDWARDS, D. P., "Improvements to the correlated-k radiative transfer method: Application to satellite infrared sounding," Journal of Geophysical Research, Vol. 105, No. D14, pages 18,135-18,156, July 27, 2000  17 BAER-RIEDHART, JENNY, "ERAST: Scientific Applications and Technology Commercialization," Mezzanine Plenary Session  18 KHATTATOV, BORIS, LYJAK, LAWRENCE, and GILLE, JOHN, "On Application of Photochemical Models to the Design of Measurement Strategies," Atmospheric Chemistry Division, National Center for Atmospheric Research  19 KHATTATOV, BORIS V., et al., "Assimilation of satellite observations of long-lived chemical species in global chemistry transport models," Journal of Geophysical Research, Vol. 105, No. D23, pages 29,135-29,144, December 16, 2000  19 RODGERS, CLIVE D., "Inverse Methods for Atmospheric Sounding Theory and Practice," Series on Atmospheric, Oceanic and Planetary Physics—Vol. 2, World Scientific  20 STEPHENS, G. L., et al., "The Department of Energy's Atmospheric Radiation Measurement (ARM) Unmanned Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  21 BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference Colorado, July 1999, SPIE Vol. 3756  22 SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11  23 SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11		the item (book, magazine, journal, serial, sy	mposium, catalog	, etc.), date, page(s), volume-issue	T <sup>2</sup>
three-dimensional chemistry-transport model," Journal of Geophysical Research, 2000  EDWARDS, D. P., "Improvements to the correlated-k radiative transfer method: Application to satellite infrared sounding," Journal of Geophysical Research, Vol. 105, No. D14, pages 18,135-18,156, July 27, 2000  BAER-RIEDHART, JENNY, "ERAST: Scientific Applications and Technology Commercialization," Mezzanine Plenary Session  KHATTATOV, BORIS, LYJAK, LAWRENCE, and GILLE, JOHN, "On Application of Photochemical Models to the Design of Measurement Strategies," Atmospheric Chemistry Division, National Center for Atmospheric Research  KHATTATOV, BORIS V., et al., "Assimilation of satellite observations of long-lived chemical species in global chemistry transport models," Journal of Geophysical Research, Vol. 105, No. D23, pages 29,135-29,144, December 16, 2000  RODGERS, CLIVE D., "Inverse Methods for Atmospheric Sounding Theory and Practice," Series on Atmospheric, Oceanic and Planetary Physics—Vol. 2, World Scientific  STEPHENS, G. L., et al., "The Department of Energy's Atmospheric Radiation Measurement (ARM) Unmanned Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference Colorado, July 1999, SPIE Vol. 3756  SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11	14			of Pollution in The Troposphere	
Sounding," Journal of Geophysical Research, Vol. 105, No. D14, pages 18,135-18,156, July 27, 2000  BAER-RIEDHART, JENNY, "ERAST: Scientific Applications and Technology Commercialization," Mezzanine Plenary Session  KHATTATOV, BORIS, LYJAK, LAWRENCE, and GILLE, JOHN, "On Application of Photochemical Models to the Design of Measurement Strategies," Atmospheric Chemistry Division, National Center for Atmospheric Research  KHATTATOV, BORIS V., et al., "Assimilation of satellite observations of long-lived chemical species in global chemistry transport models," Journal of Geophysical Research, Vol. 105, No. D23, pages 29,135-29,144, December 16, 2000  RODGERS, CLIVE D., "Inverse Methods for Atmospheric Sounding Theory and Practice," Series on Atmospheric, Oceanic and Planetary Physics—Vol. 2, World Scientific  STEPHENS, G. L., et al., "The Department of Energy's Atmospheric Radiation Measurement (ARM) Unmanned Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference on Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research III, Denver, Colorado, July 1999, SPIE Vol. 3756  SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11  EDWARDS, D. P., et al., "Radiative transfer modeling for the EOS Terra satellite Measurement of Pollution in the Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	15				
Plenary Session  KHATTATOV, BORIS, LYJAK, LAWRENCE, and GILLE, JOHN, "On Application of Photochemical Models to the Design of Measurement Strategies," Atmospheric Chemistry Division, National Center for Atmospheric Research  KHATTATOV, BORIS V., et al., "Assimilation of satellite observations of long-lived chemical species in global chemistry transport models," Journal of Geophysical Research, Vol. 105, No. D23, pages 29,135-29,144, December 16, 2000  RODGERS, CLIVE D., "Inverse Methods for Atmospheric Sounding Theory and Practice," Series on Atmospheric, Oceanic and Planetary Physics—Vol. 2, World Scientific  STEPHENS, G. L., et al., "The Department of Energy's Atmospheric Radiation Measurement (ARM) Unmanned Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference on Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research III, Denver, Colorado, July 1999, SPIE Vol. 3756  SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11  EDWARDS, D. P., et al., "Radiative transfer modeling for the EOS Terra satellite Measurement of Pollution in the Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	16				
Design of Measurement Strategies," Atmospheric Chemistry Division, National Center for Atmospheric Research  KHATTATOV, BORIS V., et al., "Assimilation of satellite observations of long-lived chemical species in global chemistry transport models," Journal of Geophysical Research, Vol. 105, No. D23, pages 29,135-29,144, December 16, 2000  RODGERS, CLIVE D., "Inverse Methods for Atmospheric Sounding Theory and Practice," Series on Atmospheric, Oceanic and Planetary Physics—Vol. 2, World Scientific  STEPHENS, G. L., et al., "The Department of Energy's Atmospheric Radiation Measurement (ARM) Unmanned Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference on Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research III, Denver, Colorado, July 1999, SPIE Vol. 3756  SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11  EDWARDS, D. P., et al., "Radiative transfer modeling for the EOS Terra satellite Measurement of Pollution in the Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	17		olications and Techno	ology Commercialization," Mezzanine	
chemistry transport models," Journal of Geophysical Research, Vol. 105, No. D23, pages 29,135-29,144, December 16, 2000  RODGERS, CLIVE D., "Inverse Methods for Atmospheric Sounding Theory and Practice," Series on Atmospheric, Oceanic and Planetary Physics—Vol. 2, World Scientific  STEPHENS, G. L., et al., "The Department of Energy's Atmospheric Radiation Measurement (ARM) Unmanned Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference on Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research III, Denver, Colorado, July 1999, SPIE Vol. 3756  SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11  EDWARDS, D. P., et al., "Radiative transfer modeling for the EOS Terra satellite Measurement of Pollution in the Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	18	KHATTATOV, BORIS, LYJAK, LAWRENCE, and GI Design of Measurement Strategies," Atmospheric Cl	ILLE, JOHN, "On Ap hemistry Division, N	plication of Photochemical Models to the ational Center for Atmospheric Research	
Oceanic and Planetary Physics—Vol. 2, World Scientific  STEPHENS, G. L., et al., "The Department of Energy's Atmospheric Radiation Measurement (ARM) Unmanned Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference on Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research III, Denver, Colorado, July 1999, SPIE Vol. 3756  SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11  EDWARDS, D. P., et al., "Radiative transfer modeling for the EOS Terra satellite Measurement of Pollution in the Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	19	chemistry transport models," Journal of Geophysical			
Aerospace Vehicle (UAV) Program," Bulletin of the American Meteorological Society, Vol. 81, #12, pgs. 2915-2937  BAILAK, GEORGE V., et al., "MOPITT airborne validation instrument: MOPITT-A," Part of the SPIE Conference on Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research III, Denver, Colorado, July 1999, SPIE Vol. 3756  SMITH, MARK, W., "Remote sensing of atmospheric carbon monoxide with the MOPITT Airborne Test Radiometer (MATR), pgs. 1-11  EDWARDS, D. P., et al., "Radiative transfer modeling for the EOS Terra satellite Measurement of Pollution in the Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	20			ory and Practice," Series on Atmospheric,	
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EDWARDS, D. P., et al., "Radiative transfer modeling for the EOS Terra satellite Measurement of Pollution in the Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	22	BAILAK, GEORGE V., et al., "MOPITT airborne valid on Optical Spectroscopic Techniques and Instrumen Colorado, July 1999, SPIE Vol. 3756	dation instrument: Matation for Atmosphe	IOPITT-A," Part of the SPIE Conference Cric and Space Research III, Denver,	
Troposphere," Journal of Geophysical Research, Vol. 104, No. D14, pages 16,755-16,775, July 27, 1999	23	SMITH, MARK, W., "Remote sensing of atmospheric Radiometer (MATR) , pgs. 1-11	c carbon monoxide v	vith the MOPITT Airborne Test	007
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	25	LAMARQUE, J., et al., "Assimilation of Measurement of Air Pollution from Space (MAPS) CO in a global three-dimensional model," Journal of Geophysical Research, Vol. 104, No. D21, pages 26,209-26,218, November 20, 1999	
	26	PAN, LIWEN, et al., "Retrieval of Tropospheric carbon monoxide for the MOPITT experiment," Journal of Geophysical Research, Vol. 103, No. D24, pgs. 32,277-32,290, December 27, 1998	
	27	LEVELT, P. F., et al., "Assimilation of MLS ozone measurements in the global three-dimensional chemistry transport model ROSE," Geophysical Research Letters, Vol. 25, No. 24, pgs 4493-4496, December 15, 1998	)
	28	SMITH, MARK, W., et al., "The Measurements of Pollutants in the Troposphere (MOPITT) Airborne Test Radiometer (MATR), The Earth Observer, July/August 1998, Vol. 10 No.4, http://eospso.gsfc.nasa.gov/eos_observ/7_8_98/p21.html.	ct -
	29	TOLTON, BOYD, T., et al., "Characterization of the length-modulated radiometer," Applied Optics, Vol. 36, No. 287, August 1, 1997, pgs. 5409-5420	6 2003
	30	SMITH, MARK W., "Method and results for optimizing the MOPITT methane bandpass," Applied Optics, Vol. 36, No. 18, June 20, 1997, pgs. 4285-4291	ಜ
	31	PAN, LIWEN, et al., "Satellite remote sensing of tropospheric CO and CH4: forward model studies of the MOPITTC instrument," Applied Optics, Vol. 34, No. 30, October 20, 1995, pgs 6976-6988	
	32	ANDERSSON, E., et al., "Use of cloud-cleared radiances in three/four-dimensional variational data assimilation," Q.J.R. Meteorol. Soc. (1194), 120, pgs. 627-653	
	33	RUSSELL, JAMES M., III, et al., "The Halogen Occultation Experiment," Journal of Geophysical Research, Vol. 98, No. D6, pgs 10,777-10,797, June 20, 1993	
	34	GRASSOTTI, C., et al., "A Study of Satellite Emission computed Tomography," Advances in Remote Sensing Retrieval Methods, RSRM 1987, Deepak Publishing, ISBN 0-937194-13-1	-
	35	DRUMMOND, J. R., "Novel correlation radiometer: the length-modulated radiometer," Applied Optics, Vol. 28, No. 13, July 1, 1989, pgs. 2451-2452	

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	36	REICHLE, HENRY G., et al., "Feasibility of determining the vertical profile of carbon monoxide from a space platform," Applied Optics, Vol. 28, No. 11, June 1, 1989, pgs. 2104-2110	
	37	WYATT, C. L., "Radiometric System Design, Chapter 8 The Radiometric Performance Equation," MacMillan Publishing, pgs. 109-113	
	38	LORENC, A. C., "Analysis methods for numerical weather prediction," Quart. J. R. Met. Soc. (1986), 112 pgs. 1177-1194	
	39	FLEMING, HENRY E., "Temperature Retrievals via Satellite Tomography," Advances in Remote Sensing Retrieval Methods, A. Deepak, 1985, ISBN 0-937194-07-7	
12	40	FLEMING, HENRY E., "Satellite Remote Sensing by the Technique of Computed Tomography," Journal of Applied Meteorology, Vol. 21, October 1982, pgs. 1538-1549	
, .	41	SMITH, W. L., "The Use of Interferometric Radiance Measurements for Sounding the Atmosphere," Journal of the Atmospheric Sciences, Vol. 36, April 1979, pgs. 566-575	
	42	LUDWIG, C. B., "Measurement of Air Pollutants from Satellites. 1: Feasibility Considerations," Applied Optics, Vol. 13, No. 6, June 1974, pgs. 1494-1509	
	43	BURCH, D. E., et al., "Instrument to Monitor CH4, CO, and Co2 in Auto Exhaust," October 1973, Philco-Ford Corp. prepared for Environmental Protection Agency  ELLIS, P., et al., "Remote sounding of atmospheric temperature from satellites IV. The selective chopper	0
	44	ELLIS, P., et al., "Remote sounding of atmospheric temperature from satellites IV. The selective chopper radiometer for Nimbus 5," Proc. R. Soc. Lond. A. 334, August 28, 1973, pgs. 149-170	0CT -6
	45	TAYLOR, F. W., et al., Radiometer for Remote Sounding of the Upper Atmosphere," Applied Optics, Vol. 11, Ne. 1, January 1972, pgs. 135-141	200:
	46	HOUGHTON, J. T., et al., "Remote sounding of atmospheric temperature from satellites," Proc. Roy. Soc. Long. A. 320, pgs. 23-33 (1970)	

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	47	ABEL, P. G., et al., "Remote sounding of atmospheric termperature from satellites II. The selective chopper radiometer for Nimbus D," Proc. Roy. Soc. Lond. A. 320, pgs 35-55 (1970)		
	48	WARK, D. Q., et al., "Indirect Measurements of Atmospheric Temperature Profiles from Satellites: I. Introduction," Monthly Weather Review, Vol. 94, Number 6, June 1966, pgs. 351-362		
	49	KAPLAN, LEWIS D., "Inference of Atmospheric Structure from Remote Radiation Measurements," Journal of the Optical Society of America, Vol. 49, Number 10, October 1959, pgs. 1004-1007		
	50	KING, JEAN, "The Radiative Heat Transfer of Planet Earth," Scientific Uses of Earth Satellites, The University of Michigan Press 1958		
	51	Atmospheric Absorption, Field Measurements of Atmospheric Transmittance, Fig. 5-31		
	52	PAN, LIWEN, et al., "Analysis and Characterization of the Retrieval Algorithm for Measuring Tropospheric COusing the MOPITT instrument," SPIE Vol. 2830, pgs. 159-168		
	53	TAYLOR, F. W., Chapter 3 Pressure Modulator Radiometry," Spectrometric Techniques, Vol III 1983 Academic Press, pgs. 137-197  TOLTON, BOYD T., et al., "Calibration of a length modulated radiometer," SPIE Vol. 2830, pgs. 253-263	2 6	
	54	TOLTON, BOYD T., et al., "Calibration of a length modulated radiometer," SPIE Vol. 2830, pgs. 253-263	9- I	
	55	RUSSELL, JAMES M., et al., "Global monitoring of stratospheric halogen compounds from a satellite using gas filter spectroscopy in the solar occultation mode," Applied Optics, Vol. 16, No. 3, March 1977, pgs. 607-612	2003	
	56	GOERS, Uta-Barbara, et al., "A PPLN-OPO-based backscatter absorption gas imaging (BAGI) system and its application to the visualization of fugitive gas emissions," Part of the SPIE Conference on Application of Tunable Diode and Other Infrared Sources for Atmospheric Studies and Industrial Processing Monitoring II, Vol 3758, June 1999, pgs. 172-179		
	57	ANIOLEK, KENNETH W., "Trace gas detection in the mid-IR with a compact PPLN-based cavity ring down spectrometer," SPIE Vol. 3758, July 1999, pgs. 62-73		

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